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A New *Pidonia* (Coleoptera, Cerambycidae) from the Tôkai District, Central Honshu, Japan

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Abstract A new species of *Pidonia* closely related to *P. matsushitai* is described from the southern side of central Honshu, Japan, under the name of *P. tsuyukii*. Its vertical distribution is noted with reference to the vertical vegetational zonation.

Key words: Cerambycidae; *Pidonia*; new species; Tôkai District; Vertical distribution.

Pidonia matsushitai (OHBAYASHI) is one of the common species in central Honshu, Japan. It appears from June to August in the upper part of deciduous broadleaved forests and the lower part of subalpine coniferous forests. TSUYUKI (1975) pointed out that the prothorax of *P. matsushitai* from Aokigahara on the northwestern slope of Mt. Fuji is tinted with black in both sexes.

In 1992 and 1993, field surveys were made in the Tôkai District including Mt. Fuji. I collected many specimens of *P. matsushitai* on flowers of *Hydrangea scandens*, *H. hirta*, *Stephanandra incisa* and so on. These specimens were proved to belong to a new taxon after a careful examination.

In the present paper, a new species, which has previously been regarded merely as a local population of *P. matsushitai* in Mt. Fuji, will be described under the name of *Pidonia tsuyukii*. The holotype designated in this study is preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my hearty thanks to Messrs. H. HAYAKAWA, T. KITAMURA, K. MORIKAWA, H. NAKABAYASHI, S. SUZUKI, S. TAKECHI, K. TSUTSUI, S. TSUYUKI and T. YAMAMOTO, who gave me an opportunity to work with this interesting material.

Pidonia (Pidonia) tsuyukii KUBOKI, sp. nov.

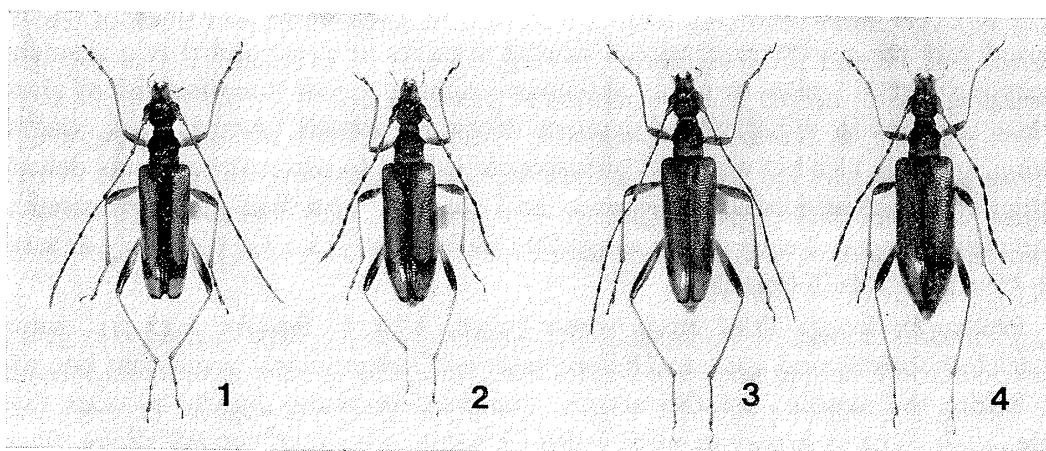
[Japanese name: Tôkai-hime-hanakamikiri]

(Figs. 1–6, 8, 10–11)

Body relatively large, elongate, slightly tapering apically (male) or more robust (female), and furnished with pale fulvous pubescence.

Length: 6.8–9.8 mm (male), 6.5–10.5 mm (female); breadth: 1.6–2.4 mm (male), 1.6–2.8 mm (female).

Color. Body fulvous to black; head reddish black, sometimes reddish fulvous; mouthparts yellowish fulvous except for reddish brown apex of each mandible;



Figs. 1–4. *Pidonia (Pidonia) tsuyukii* KUBOKI, sp. nov. from Aokigahara, Yamanashi Prefecture (1, 2) and from Kadogeta, Shizuoka Prefecture (3, 4). — 1, 3, ♂; 2, 4, ♀.

eyes black; antennae fulvous to black, first to second segments fulvous, third and following segments distinctly infusate at their apices; prothorax infusate to black except for reddish fulvous apex and base, sometimes entirely reddish fulvous. Scutellum fulvous, sometimes darker; coxae, trochanters, femora, tibiae and tarsi almost fulvous; apex of each mid femur faintly infusate; apical half of each hind femur infusate; claws reddish brown, sometimes dark brown. Elytra yellowish fulvous with black markings, which are enlarged in female. Ventral surface:— head, thorax and abdomen fulvous in both sexes; sometimes first to second sternites faintly dark brown and rarely meso- and metasterna darkened in male.

Elytral markings (Fig. 5):— in male, sutural marking, distinctly present, variable, sometimes narrowly present, rarely almost disappearing; basal marking entirely absent; latero-basal marking small; latero-median marking small; latero-posterior marking distinct, sometimes united with sutural marking; apical band narrowly present; in female, sutural marking distinct, variable, rarely becoming small triangular marking at apical three-fourths; basal marking entirely lacking; latero-basal marking small; latero-median marking relatively large, variable, deltoid to lanceolate-oblong; latero-posterior marking large, frequently fused with one another, forming a longitudinal submarginal vitta; apical band narrowly present.

Structure. Head broader across eyes than basal width of prothorax (male, 1.19: 1; female, 1.05: 1); terminal segment of maxillary palpus broadened apically with straight outer margin; tempora narrowed posteriorly in anterior halves and abruptly constricted in posterior halves, almost impunctate and shining, with several setae; frons subvertical and transverse, covered with coarse punctures, bearing a fine but distinct median longitudinal furrow extending backwards to vertex; vertex convex above, coarsely punctured; two to five supraorbital setae present, one of them especially long; gula shining, very sparsely clothed with long pubescence. Eyes relatively prominent, moderately faceted, strongly emarginate at middle of internal

margins. Antennae relatively long and slender in male, short and thick in female, inserted just behind the level across frontal margins of eyes; apical two segments surpassing elytral apices in male; antennae reaching apical three-fourths of elytra by last segment in female; first segment distinctly dilated towards apex, weakly shining, sparsely clothed with fine pubescence, second to eleventh segments densely clothed with fine appressed pubescence and sparsely with fine erect pubescence; comparative length of each antennal segment as follows:— $5 > 3 \geq 1 + 2 > 6 \geq 4$ (male) or $1 + 2 > 5 > 3 > 4 = 6$ (female).

Prothorax longer than basal width (male, 1.25:1; female, 1.15:1), deeply constricted both behind apex and before base, and subangularly prominent laterally just before the middle; breadth across prominent portions slightly broader than (male, 1.02:1) or as broad as basal width (female); pronotum convex above, finely and closely punctured, sparsely clothed with fine pubescence; posterior lateral setae long; prosternum shining, extremely thinly clothed with short pubescence; meso- and metasterna finely punctate, densely clothed with fine appressed pubescence. Scutellum small and triangular, slightly longer than broad, bearing thin pubescence on the surface. Elytra relatively flat at basal third near suture, 2.63 times (male) or 2.52 times (female) as long as basal width, gradually narrowed posteriorly (male) or almost parallel-sided (female), and separately subtruncate at apices; surface closely and deeply punctate, densely clothed with subappressed pubescence; interspace between punctures broader than diameter of each puncture.

Legs relatively slender, finely punctate, clothed with short pubescence; femora clavate, with subappressed pubescence; hind femur reaching elytral apex in both sexes; tibiae linear, straight, with suberect pubescence; tarsi densely clothed with short pubescence on under surface; first segment of metatarsus longer than the following two taken together; third segment strongly dilated apically and deeply emarginate at middle of apex.

Abdomen elongate and gradually narrowed towards apex; surface of each sternite densely covered with extremely fine pubescence; in male, apex of last sternite triangularly emarginate at middle (Fig. 8), apex of last tergite subtruncate, slightly projecting triangularly, both angles obtuse (Fig. 6); in female, apex of last sternite round, apex of last tergite subtruncate, shallowly emarginate.

Male genitalia:— Median lobe relatively thick, strongly curved ventrally and acutely pointed at apex; lateral lobes shorter than median lobe, each apex produced and sparsely furnished with relatively long terminal hairs; endophallus long and furnished with a pair of falcate sclerites; diverticulum located at the apical portion of endophallus relatively short and thick.

Female genitalia:— Spermatheca lightly sclerotized, relatively swollen, strongly curved at apical part, widest before the base, gradually narrowed apically; the part continuing to spermathecal duct constricted with transverse crease; spermathecal gland located at lateral wall; vagina gradually enlarged basally; valvifer narrowed apically; apical segment of coxite rather large, lightly sclerotized at the inner part,

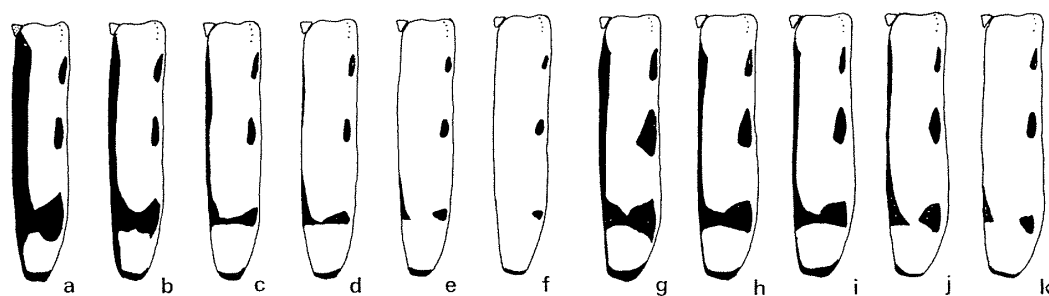
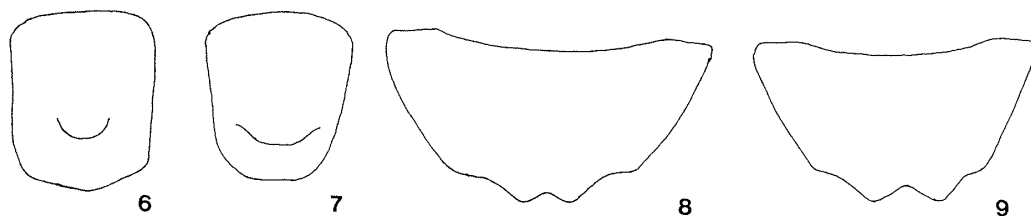


Fig. 5. Variation of elytral markings in *Pidonia tsuyukii* KUBOKI, sp. nov. — a-f, ♂; g-k, ♀.



Figs. 6-9. Last tergite (6, 7) and last sternite (8, 9) of male. — 6, 8, *Pidonia tsuyukii* KUBOKI, sp. nov.; 7, 9, *P. matsushitai* (OHBAASHI).

obtusely pointed at the apex, and furnished with sensory pubescence; stylus abaxially united to the lateral face of coxite, sclerotized except for apex, broad, slightly enlarged apically, with long and sparse hairs at the terminal area.

Type series. Holotype: ♂, Aokigahara, 1,120 m alt., near Mt. Ohmuro-yama, Kamikuishiki-mura, Nishiyatsushiro-gun, Yamanashi Pref., 13-VII-1992, M. KUBOKI leg. Paratypes: 47 ♂♂, 9 ♀♀, same data as for the holotype; 17 ♂♂, 6 ♀♀, Aokigahara, 1,180 m alt., Narusawa-mura, Minamitsuru-gun, Yamanashi Pref., 16-VII-1992, M. KUBOKI leg.; 23 ♂♂, 1 ♀, Aokigahara, 26-VII-1974, S. TSUYUKI leg.; 10 ♂♂, 1 ♀, same locality, 3~4-VIII-1974, S. TSUYUKI leg.; 18 ♂♂, 1 ♀, Mt. Ohmuro-yama, 17-VI-1976, K. SUZUKI leg.; 1 ♂, 1 ♀, Tojiro, 600 m alt., Shimobe-chō, Nishiyatsushiro-gun, Yamanashi Pref., 30-V-1992, S. TAKECHI leg.; 3 ♂♂, 1 ♀, Yunooku, 500-700 m alt., Shimobe-chō, 30-V-1992, S. TAKECHI leg.; 3 ♂♂, 4 ♀♀, same locality, 30-V-1992, K. TSUTSUI leg.; 6 ♂♂, 2 ♀♀, same locality, 550-1,200 m alt., 6-VI-1992, S. TAKECHI leg.; 9 ♂♂, 4 ♀♀, same locality, 6-VI-1992, K. TSUTSUI leg.; 2 ♂♂, 1 ♀, same locality, 6-VI-1992, K. MORIKAWA leg.; 3 ♂♂, 2 ♀♀, same locality, 6-VI-1992, M. KUBOKI leg.; 2 ♂♂, Sanogawa, 750 m alt., Nanbu-chō, Minamikoma-gun, Yamanashi Pref., 5-VI-1993, M. KUBOKI leg.; 1 ♂, same locality, 5-VI-1993, K. TSUTSUI leg.; 1 ♂, 1 ♀, Mt. Ashitaka-yama, 1,200-1,300 m alt., Susono-shi, Shizuoka Pref., 2-VI-1979, K. SUZUKI leg.; 8 ♂♂, 4 ♀♀, Momonoki Spa, 1,100 m alt., Ashiyasu-mura, Nakakoma-gun, Yamanashi Pref., 19-VI-1993, K. TSUTSUI leg.; 1 ♂, same locality, 19-VI-1993, T. KITAMURA leg.; 3 ♂♂, 1 ♀, same locality, 19-VI-1993, K. MORIKAWA leg.; 4 ♂♂, 3 ♀♀,

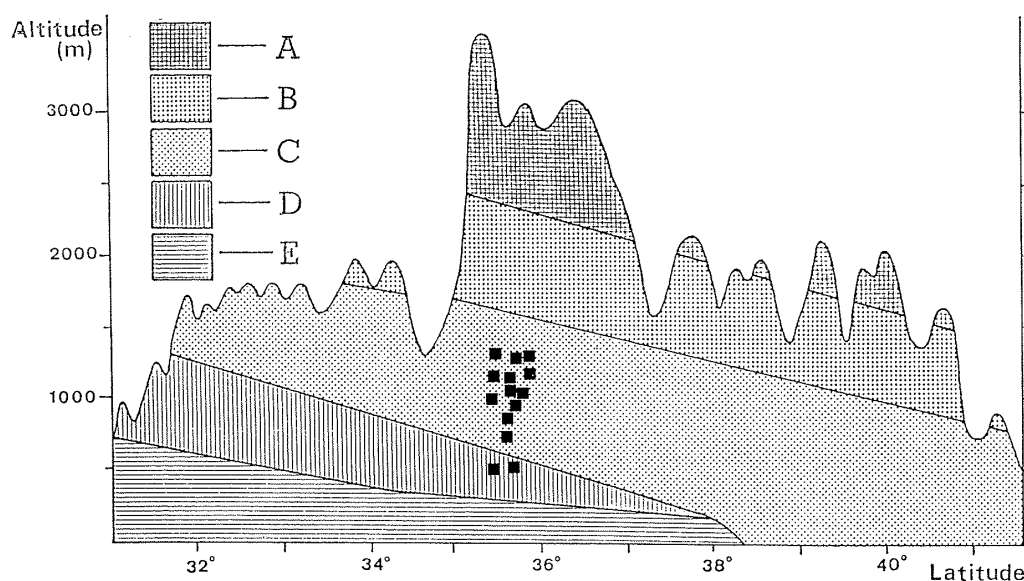


Fig. 10. Vertical distribution of *Pidonia tsuyukii* KUBOKI, sp. nov. in connection with vertical vegetational zones of Honshu, Shikoku and Kyushu. — A, Climax of alpine desert, grassland and scrub (including *Pinus pumila* formation); B, climax of conifer forest (*Abies-Picea* formation); C, climax of deciduous broadleaved forest (*Fagus crenata* formation); D, climax of intermediate conifer forest (*Tsuga sieboldi* formation); E, climax of evergreen broadleaved forest (*Castanopsis cuspidata* formation).

Maruyama-rindô, 1,220 m alt., near Mt. Kushigata, Masuho-chô, Mimamikoma-gun, Yamanashi Pref., 20-VI-1992, S. TAKECHI leg.; 2 ♂♂, 1 ♀, same locality, 20-VI-1992, M. KUBOKI leg.; 3 ♂♂, 1 ♀, Minamialps-rindô, 1,000–1,450 m alt., near Mt. Washinosumi-yama, Ashiyasu-mura, 20-VI-1992, K. MORIKAWA leg.; 1 ♂, 1 ♀, same locality, 20-VI-1992, K. TSUTSUI leg.; 1 ♂, 1 ♀, Narada, 900 m alt., Hayakawa-chô, Minamikoma-gun, Yamanashi Pref., 20-VI-1992, K. TSUTSUI leg.; 2 ♂♂, 2 ♀♀, Amehata, 850–900 m alt., Hayakawa-chô, Yamanashi Pref., 6-VI-1992, S. TAKECHI leg.; 5 ♂♂, 3 ♀♀, same locality, 6-VI-1992, K. TSUTSUI leg.; 2 ♂♂, same locality, 6-VI-1992, K. MORIKAWA leg.; 2 ♂♂, same locality, 6-VI-1992, M. KUBOKI leg.; 3 ♂♂, 2 ♀♀, Abe Pass, 1,100 m alt., Minobu-chô, Minamikoma-gun, Yamanashi Pref., 17-VI-1978, K. SUZUKI leg.; 1 ♂, Abe Pass, Umegashima, Shizuoka-shi, Shizuoka Pref., 25-VI-1972, K. TSUYUKI leg.; 2 ♂♂, same locality, 2-VII-1972, K. TSUYUKI leg.; 5 ♂♂, 4 ♀♀, Sawarajima, 1,170 m alt., Shizuoka-shi, 20-VI-1971, K. TSUYUKI leg.; 1 ♀, Nashimoto, 500 m alt., Minamishinano-mura, Shimoina-gun, Nagano Pref., 3-VI-1970, H. HAYAKAWA leg.; 1 ♀, Hyôkoshi-rindô, 1,000 m alt., Yaegouchi, Minamishinano-mura, 13-VI-1993, M. KUBOKI leg.; 4 ♂♂, 2 ♀♀, Kadogeta, 680 m alt., Misakubo-chô, Iwata-gun, Shizuoka Pref., 29-VI-1993, S. TAKECHI leg.; 3 ♂♂, 1 ♀, same locality, 29-VI-1993, K. MORIKAWA leg.; 1 ♀, same locality, 29-VI-1993, T. YAMAMOTO leg.

Distribution. Tôkai District (Central Japan).

The vertical distribution of this species is shown in Fig. 10 in connection with

the vertical vegetational zones of Japan except Hokkaido. Its distributional range is limited horizontally to the southern part of central Honshu and vertically mainly to the deciduous broadleaved forest zone.

Flight period. May to August.

Flower records. *Ilex sugeroki longipedunculata*, *Hydrangea hirta*, *H. petiolaris*, *H. paniculata*, *H. scandens*, *Stephanandra incisa*, *Ligustrum tschonoskii*, *Tilia japonica*, *Styrax obassia*, *Viburnum dilatatum*, *Weigela floribunda*, *Clethra barbinervis*.

Remarks. In spite of the restricted distributional range, this species shows clinal variation in the elytral markings and the color of head and prothorax which is expressed by increased melanism from west to east. The more eastern forms tend to have well developed black marking of elytra and coloration of head and prothorax. For example, the pronotal disk of this species is usually infuscate to black except for reddish fulvous apex and base in the Aokigahara population (Figs. 1–2). This trend continues to the Tenshu Mountains, the Ashitaka Mountains and the Minobu Mountains with most individuals possessing infuscate to black prothorax. However, in a series from Yunooku (500 to 600 m alt.) at the foot of Mt. Kenashi of the Tenshu Mountains, most of the individuals have almost reddish fulvous prothorax.

This new species is closely allied to *Pidonia matsushitai* (OHbayashi), but can be distinguished from the latter by the following key:

1. Vertex finely punctured; disk of elytra roundly convex at basal third near suture; last sternite and tergite densely clothed with relatively short pubescence in male; apex of last tergite round, both angles round in male (Fig. 7); apex of last sternite deeply emarginate triangularly in male (Fig. 9); diverticulum slenderer and longer. *P. matsushitai* (OHbayashi)
2. Vertex coarsely punctured; disk of elytra relatively flat at basal third near suture; last sternite and tergite sparsely clothed with relatively long pubescence in male; apex of last tergite subtruncate, both angles obtuse in male (Fig. 6); apex of last sternite shallowly emarginate subtriangularly in male (Fig. 8); diverticulum thicker and shorter. *P. tsuyukii* sp. nov.

Distribution of *Pidonia tsuyukii* and its Relative, *P. matsushitai* on Mt. Fuji and its Adjacent Areas

Pidonia matsushitai is widely distributed in central Honshu. Vertically, it occupies an area from the upper mountain to the subalpine zones. *Pidonia tsuyukii*, whose range is restricted to the Tōkai District, is vertically distributed from the hilly to the lower mountain zones (Fig. 11). In the adjacent areas of Mt. Fuji, *P. tsuyukii* is distributed in the Tenshu Mountains and the Ashitaka Mountains. It appears at an altitude of 500 to 1,200 m on Mt. Kenashi of the Tenshu Mountains. *Pidonia matsushitai* is distributed at 1,600 to 1,780 m in altitude of Mt. Mitsutōge of the Misaka Mountains.

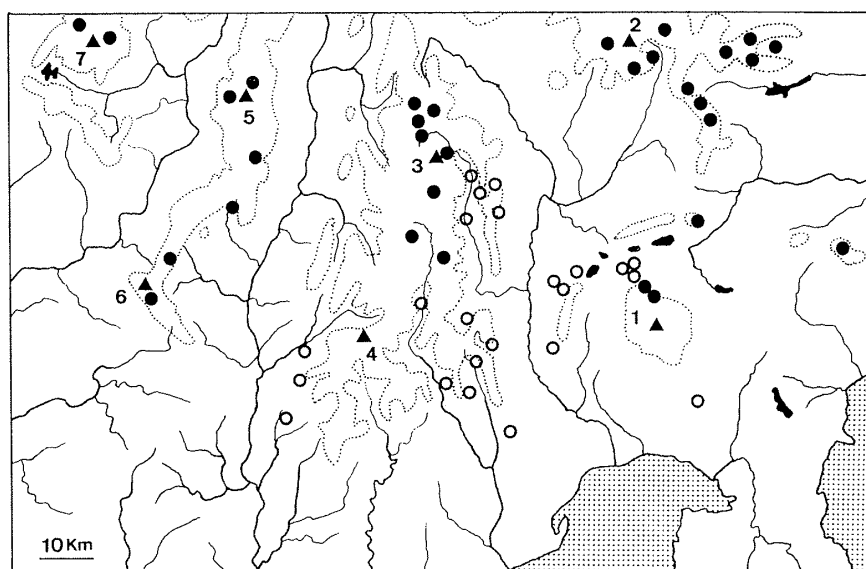


Fig. 11. Known geographic ranges of: ○, *Pidonia tsuyukii* KUBOKI, sp. nov.; ●, *P. matsushitai* (OHbayashi). — 1, Mt. Fuji; 2, Mt. Kokushi-ga-take; 3, Mt. Kita-dake; 4, Mt. Tekari; 5, Mt. Koma-ga-take; 6, Mt. Ena-san; 7, Mt. Ontake-san. Dotted line indicates the contour of 1,500 m in altitude.

Distributional ranges of these two species are respectively limited on Mt. Fuji. *Pidonia matsushitai* is vertically distributed from 1,380 to 1,550 m in altitude on the northern slope of Mt. Fuji, where it is very rare. It occurs in broadleaved forests consisting of *Cercidiphyllum japonicum*, *Pterocarya rhoifolia* and so on, and is collected on flower of *Rubus* in the last ten days of July to the first ten days of August. On the other hand, *P. tsuyukii* is mainly distributed from 1,000 to 1,300 m in altitude on the northwestern slope of Mt. Fuji. This species inhabits the Aokigahara Tree-Sea, which is developed on the lava-flows spouted in 864 A. D. The area of Aokigahara is covered with a natural forest dominated with *Chamaecyparis obtusa*, *Tsuga sieboldii*, *Ilex sugerokii longipedunculata*, *Quercus mongolica* and *Clethra barbinervis*. By the field surveys made in this area in 1992, I collected many specimens of *P. tsuyukii* on flowers of *Ilex sugerokii longipedunculata*, *Hydrangea hirta* and *Ligustrum tschonoskii* in the early to middle ten days of July. Of the 9 *Pidonia*-species obtained, *P. tsuyukii* is the most dominant one.

Habitats of *P. tsuyukii* and *P. matsushitai* are segregated on Mt. Fuji. So far as I know, no sympatric population of the two species has hitherto been found on Mt. Fuji and its adjacent areas, and no intermediate form has been found between the two species.

Reference

TSUYUKI, S., 1975. Cerambycid fauna in Mt. Fuji. *Sayabane, Tokyo*, (1): 1–15. (In Japanese.)

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